1 # EU - TYPE EXAMINATION CERTIFICATE

2 **Safety Device, Controlling Device or Regulating Device intended for use outside a potentially explosive atmosphere but required for or contributing to the safe functioning of Equipment and Protective Systems with respect to the risks of explosion Directive 2014/34/EU**

3 EU - Type Examination Certificate Number: **BAS01ATEX7158 – Issue 2**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **MTL5051 Intrinsically Safe Serial Data Communications Isolator**

5 Manufacturer: **Eaton Electric Limited**

6 Address: **Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL**

7 This re-issued certificate extends EC Type Examination Certificate No. BAS01ATEX7158 to apply to product designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 SGS Fimko Oy, Notified Body number 0598, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

8.1 The original certificate was issued by The Electrical Equipment Certification Service (UK Notified Body 0600). It, and any supplements previously issued by SGS Baseefa Ltd (UK Notified Body 1180) have been transferred to the supervision of SGS Fimko Oy (EU Notified Body 0598). The original certificate number is retained.

The examination and test results are recorded in confidential Report No. **See Certificate History**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0: 2012 + A11: 2013 EN 60079-11: 2012

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

11 This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following:

Ⓔx II (1) GD [Ex ia Ga] IIC (-20°C ≤ T_a ≤ +60°C)
[Ex ia Da] IIIC (-20°C ≤ T_a ≤ +60°C)

SGS Fimko Oy Customer Reference No. **0703** Project File No. **19/0548**

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13 **Schedule**

14 **Certificate Number BAS01ATEX7158 – Issue 2**

15 Description of Product

An MTL5051 Intrinsically Safe Serial Data Communications Isolator is designed to provide a fully floating d.c. supply for hazardous area mounted instrumentation. Communications is provided by voltage and current switching, or current loops, or RS232 or RS422 in the safe area.

The MTL5051 equipment comprises a single isolating transformer, two opto-isolators with five hazardous area outputs, each which is protected zener diode / resistance combinations to provide voltage and current limitation. The above, together with other electronic circuitry is mounted on a single multi-layer printed circuit board and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections.

Input / Output Parameters

Non-Hazardous Area Terminals 7 to 9, 10 to 12 & Terminals 13 & 14

U_m = 250V

The equipment is designed to operate from a d.c. supply of up to 35V on Terminals 7 to 9, Terminals 10 to 12 & Terminals 13 & 14.

Hazardous Area Terminals 2, 3, 4 w.r.t. 1

U_o = 14V
I_o = 192mA
P_o = 0.80W
C_i = 0
L_i = 0

Hazardous Area Terminals 2, 3 w.r.t. 1

U_o = 14V
I_o = 108mA
P_o = 0.45W
C_i = 0
L_i = 0

Hazardous Area Terminals 2, 5, 6 w.r.t. 1

U_o = 20V
I_o = 139mA
P_o = 0.46W
C_i = 0
L_i = 0

Hazardous Area Terminals 3, 4 w.r.t. 1

U_o = 14V
I_o = 88mA
P_o = 0.35W
C_i = 0
L_i = 0

Hazardous Area Terminals 5, 6 w.r.t. 1

U_o = 15V
I_o = 35mA
P_o = 0.07W
C_i = 0
L_i = 0

Hazardous Area Terminals 2, 3, 4, 5, 6 w.r.t. 1

U_o = 20V
I_o = 227mA
P_o = 0.81W
C_i = 0
L_i = 0

Load Parameters

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area load connected must not exceed the following values:

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR L/R RATIO (µH/ohm)
Hazardous Area Terminals 2, 3, 4 w.r.t. 1			
IIC	0.73	0.92	55
IIB*	4.60	2.75	229
IIA	17.0	7.34	465

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR L/R RATIO (µH/ohm)
Hazardous Area Terminals 2, 3 w.r.t. 1			
IIC	0.73	3.19	97
IIB*	4.60	13.46	371
IIA	17.0	27.05	783
Hazardous Area Terminals 2, 5, 6 w.r.t. 1			
IIC	0.22	1.89	53
IIB*	1.41	8.38	208
IIA	5.50	16.68	431
Hazardous Area Terminals 3, 4 w.r.t. 1			
IIC	0.73	4.80	118
IIB*	4.60	19.61	440
IIA	17.0	40.04	929
Hazardous Area Terminals 5, 6 w.r.t. 1			
IIC	0.58	29.37	265
IIB*	3.55	107.86	1,008
IIA	14.0	225.16	1,891
Hazardous Area Terminals 2, 3, 4, 5, 6 w.r.t. 1			
IIC	0.22	0.36	33
IIB*	1.41	1.09	138
IIA	5.50	2.89	277

* Group IIB parameters also applicable for associated apparatus [Ex ia Da] IIIC

Notes:

1) The above load parameters apply when one of the two conditions below is given:
   - the total L_i of the external circuit (excluding the cable) is < 1% of the L_o value or
   - the total C_i of the external circuit (excluding the cable) is < 1% of the C_o value.

2) The above parameters are reduced to 50% when both of the two conditions below are given:
   - the total L_i of the external circuit (excluding the cable) is ≥ 1% of the L_o value and
   - the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

   The reduced capacitance of the external circuit (including cable) shall not be greater than 1µF for Groups IIB & IIA and 600nF for Group IIC.

The values of L_o and C_o determined by this method shall not be exceeded by the sum of all the L_i plus cable inductances in the circuit and the sum of all of the C_i plus cable capacitances respectively.

16 Report Number

See Certificate History

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
1.2.7	Protection against other hazards (LVD type requirements, etc.)
1.2.8	Overloading of equipment (protection relays, etc.)
1.4.1	External effects
1.4.2	Aggressive substances, etc.

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
CI5051	2 of 6	3	9.19	MTL5051 IS Serial Data Communications Isolator – Circuit Diagram
CI5051	5 of 6	5	10.19	MTL5051 IS Serial Data Communications Isolator – PCB Track Layout

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 05.0021 Iss. 3

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI5051	1 of 6	2	11.17	MTL5051 IS Serial Data Communications Isolator Parts List
CI5051	3 of 6	3	2.98	MTL5051 IS Serial Data Communications Isolator – PCB Component Layout
CI5051	4 of 6	4	11.17	MTL5051 IS Serial Data Communications Isolator General Assembly and Label
CI5051	6 of 6	1	10.97	MTL5051 IS Serial Data Communications Isolator Transformer Winding Details
CI5000-8	1 of 2	2	10.00	TFR310 Assembly Details
CI5000-8	2 of 2	2	10.00	TFR308 PCB

The above drawings are associated with IECEx Certificate No. IECEx BAS 05.0021

20 Certificate History

Certificate No.	Date	Comments
BAS01ATEX7158	29 April 2002	The release of the prime certificate. The associated test and assessment against the requirements of EN 50014: 1997 + Amds. 1 & 2 and EN 50020: 1994 is documented in Test Report No. 01(C)0220.
BAS01ATEX7158 Issue 1	12 February 2018	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current design meets the requirements of EN 60079-0: 2012 + A11: 2013 & EN 60079-11: 2012 including the revision of the equipment marking and load parameters notes in accordance with these standards. The certificate also permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking, as well as minor drawing changes not affecting the original assessment. The associated assessment is documented in Certification Report No. GB/BAS/ExTR17.0222/00 (Held with IECEx Certificate No. IECEx BAS 05.0021 Iss. 2), Project File 16/0371.
BAS01ATEX7158 Issue 2	24 October 2019	This issue of the certificate permits minor component and PCB track changes not affecting the original assessment. The associated assessment is documented in Certification Report No. GB/BAS/ExTR19.0267/00 (Held with IECEx Certificate No. IECEx BAS 05.0021 Iss. 3), Project File 19/0548.
For drawings applicable to each issue, see original of that issue.		